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09/825,139	04/03/2001	David J. Wetherall	41007.P005	1582

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EXAMINER

BARQADLE, YASIN M

ART UNIT	PAPER NUMBER
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2153

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/825,139

Applicant(s)

WETHERALL ET AL.

Examiner

Yasin M. Barqadle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. The amendment filed on March 28, 2005 regarding claims 11, and 29-32 have been fully considered but are moot in view of the new ground(s) of rejection.

- Claims 11,14 and 22-26 have been amended.
- New claims 29-32 have been added.
- Claims 1-32 are presented for examination.

Response to Arguments

2. In response to Applicant's arguments in page 14, first paragraph that "the applied reference does not show or suggest techniques for confronting denial service attacks as claimed". Examiner notes that "undesirable packets that are part of a denial service attacks" are not described in the specification in such a way as to enable one skilled. However, Examiner contends that new reference of Canion et al shows this limitation. See (¶ 0171; ¶ 0174-0177 and ¶ 0183-0187).

In response to Applicant's arguments in page 13, last paragraph that "the invention of claim 1 is not described by this prior art reference." Examiner contends that the prior art of reference teaches the claimed invention. Specifically the steps of independently determining whether the packet is a part of a

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conversation between the client and the server based at least in part on persistent information included in the packet. The packet is handled based in part on the result of the independent determination [each message or data packet transmitted between the client and the server has a structure as shown in fig. 4, that comprises compressed session identifier, envelope identifier and data payload. Based on compressed session identifier or the envelope identifier (client address and port number, server address and port number), or both, it is determined to which session each received packet belongs, the packet is handled (routed or redirected to other networks) col. 4, lines 46 to col. 5, line 16 and col. 5, lines 40-67].

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 29 and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description

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requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. "undesirable packet that is part of a denial of service attack on the server".

4. Claims 29 and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. "undesirable packet that is part of a denial of service attack." The only time Applicant mentions "denial of service attack" in the specification happens to be at the end of the background of the invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al USPN (6269402) in view of Primak et al USPN. (6598077).

As per claim 1, Lin et al teach a method of operation comprising:

receiving a packet sent by a client device (102,fig.1) destined for a server (104,fig.1)[server receives data packets col. 3, lines 33-36]; independently determining whether said packet is a part of a conversation between the client and the server based at least in part on persistent information included in said packet [determining if session identifier exists in currently active sessions col. 4, lines 46 to col. 5, line 16 and col. 5, lines 40-67]; and handling the packet based at least in part on the result of said independent determination [communication activity between the client and the server takes place based on the determined session identifier in the packet [col. 4, lines 46 to col. 5, line 16 and col. 5, lines 40-67]].

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Although Lin et al show substantial features of the claimed invention as explained in claim 1, he does not explicitly show a routing device.

Nonetheless, routing devices that perform content routing in a client server network are well known in the art and would have been an obvious modification of the system disclosed by Lin et al, as evidenced by Primak et al USPN. (6598077).

In analogous art, Primak et al whose invention is about a system for directing a client request (client 60, fig. 1) for dynamic content to an application server (fig. 1, server 30), disclose a system containing a dynamic content router (fig. 1, router 10) that examines a session communication between client and a server based on information (session identifier) associated with client request [fig. 1, Col. 4, lines 17-51 and col. 6, lines 9-53].

Giving the teaching of Primak et al, a person of ordinary skill in the art would have readily recognized the desirability and the advantage of modifying Lin et al by employing the dynamic content routing system of Primak et al because it facilitates the determining and identifying client requests containing verifiable session IDs in order to forward the request to the appropriate application server.

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As per claim 2, Lin et al teach the invention, wherein said independent determination comprises independently verifying a conversation identifier included in said packet based at least in part on other information included (compressed ID or client address and port) in said packet [col. 4, lines 46-49 and col. 5, 11-16].

As per claim 3, Lin et al teach the invention, wherein said independent verification comprises independently regenerating the conversation identifier using at least said other information included in said packet [generating a compressed session identifier that is derived from the a long session identifier col. 4, lines 46-49 and col. 5, 11-16]; and

comparing the independently re-generated conversation identifier with the included conversation identifier [searching a database of currently active sessions to determine if it is currently in use and which session a received packet belongs to. Hence performing a comparing and identifying col. 4, lines 46-57 and col. 5, 2-16].

As per claim 10, Lin et al teach the method of claim 1, wherein the method further comprises forwarding the packet to the server if the packet is deemed to be a part of a conversation between the client device and the server, and non-forwarding the packet

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if the packet is deemed not a part of a conversation between the client device and the server [col. 6, lines 6-44].

6. Claims 11, 17-19, 22, 29 and 32 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al USPN (6269402) in view of Primak et al USPN (6598077) and further in view of Canion et al USPN. (20020108059).

As per claim 11 and 22, these claims include similar limitations as explained in claim 1 above.

Lin et al further teach a method of operation comprising:

at least one processor (102 and 104, fig. 2);
generating an independently verifiable conversation identifier for a packet destined for a client device, using at least persistent information that will be included in said packet [col.4, lines 9-20; col. 4, lines 46 to col. 5, line 16 and col. 5, lines 40-67];

including the independently verifiable conversation identifier with said packet for use by the client device to include in a subsequent packet sent by the client device destined for the server [col.4, lines 9-20; col. 4, lines 46 to col. 5, line 16 and col. 5, lines 40-67]; and

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transmitting said independently verifiable conversation identifier included packet to said client device [col. 4, lines 9-61].

Primark et al further teach a summation unit to insert the independently verifiable conversation identifier with a packet [col.7, lines 63 to col. 8, lines 9 and col. 11, lines 41-56].

Although Lin et al and Primak et al show substantial features of the claimed invention as explained in claim 1 and 11 above, they do not explicitly show determining whether to forward or drop the packet through a network in response to the conversation identifier to protect the network against undesirable packets.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the system disclosed by Lin and Primak et al, as evidenced by Canion et al USPN. (20020108059).

In analogous art, Canion et al whose invention is about a system for detecting incoming data packets in a network, disclose a way of determining whether to forward or drop a packet through a network in response to a conversation identifier (received packet information) to protect the network against undesirable packets (packets with potential security violations) (§ 0174-0177 and § 0183-0187). Giving the teaching of Bull et al, a

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person of ordinary skill in the art would have readily recognized the desirability and the advantage of modifying Lin and Primak et al by employing the intrusion detection system of Canion et in order to identify packets with potential security violations for the advantage of protecting the network against network security attacks such as denial of service attacks, sync attacks, ping attacks and unauthorized attacks (§ 0171 and § 0183-0187).

As per claim 17, this claim include similar limitations as explained in claim 1 and 11 above, Lin et al further teach:

an interface to receive a packet sent by a client device destined for a server [fig. 2 and col. 3, lines 51-59]; and a function unit coupled to the interface to independently determine whether said packet is a part of a conversation between the client and the server based at least in part on persistent information included in the packet [fig. 2 and col. 3, lines 51-59 and col. 4, lines 46-49 and col. 5, 11-16]; and

output a packet disposition signal based at least in part on the result of said independent determination [fig. 1; col. 4, lines 46 to col. 5, line 16 and col. 5, lines 40-67].

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As per claim 18, Lin et al teach the invention, wherein said function unit is to designed to make said independent determination by independently verifying a conversation identifier included in said packet based at least in part on other information included in said packet [col. 3, lines 51 to col. 4, line 49 and col. 5, 11-16].

As per claim 19, this claim includes similar limitations as claim 3 above. Therefore, it is rejected with the same rationale.

As per claim 29, Canion et al teach the invention, wherein the method further comprises forwarding the packet to the server if the packet is deemed to be part of a conversation between the client device and the server, and dropping the packet if the packet is deemed to be an undesirable packet the is part of a denial of service attack on the server (§ 0174-0177 and § 0183-0187).

As per claim 32, Canion et al as modified teach the invention, where the function unit (processing unit) drops packets that are not part of the conversation identifier to protect the server against receipt of undesirable packets (§ 0174-0177 and § 0183-0187).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

7. Claims 14-16 and 26-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Bull et al USPN (6799270).

As per claims 14 and 26, Bull et al teach a method of operation comprising [fig. 1]:

receiving a packet a from a server [col.4, lines 12-34];
extracting from the packet at least an independently verifiable conversation identifier included in the packet by the server for inclusion in a subsequent packet of the client device for the server (col.2, lines 21-36), to allow one or more intermediate routing devices to be able to independently determine whether to permit continuing forwarding of the subsequent packet of the

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client device to the server [col.2, lines 21-36 and col. 15, lines 1-60]; and

saving said extracted at least independently verifiable conversation identifier for said subsequent use [col. 2, lines 21-36 and col. 15, lines 1-60].

As per claims 15 and 27, Bull et al teach the invention, wherein the method further comprises retrieving at least a saved independently verifiable conversation identifier [col. 14, lines 35-67];

including the retrieved independently verifiable conversation identifier in a packet to be sent to the server [col. 4, lines 12-34; and

the independently verifiable conversation identifier included packet to the server [col. 2, lines 21-36 and col. 15, lines 1-60].

As per claims 16 and 28, Bull et al teach the invention, wherein extracting an included nonce and an associated sequence number of the nonce, the nonce being independently verifiable by a party using a deterministic function and having knowledge of a secret value, based on persistent information included in the packet [Col. 5, lines 9-34 and Col. 6, lines 7-65].

8. Claims 4-9, 12-13 and 21, 23-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al USPN (6269402) in view of Bull et al USPN (6799270) and further in view of Primak et al USPN (6598077).

As per claims 4 and 12, although Lin et al and Primak et al show substantial features of the claimed invention as explained in claim 1 and 11 above, they do not explicitly show a nonce.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the system disclosed by Lin et al, as evidenced by Bull et al USPN. (16799270).

In analogous art, Bull et al whose invention is about a system for securely distributing session keys over a network of a chain of nodes including client nodes (14), server nodes (18) and intermediate nodes (18), disclose a bit string of data that includes a nonce (randomly generated value that is concatenated to the end of a message) that is used for identification and verification purpose [Col. 6, lines 39-50 and col. 7, lines 21-60]. Giving the teaching of Bull et al, a person of ordinary skill in the art would have readily recognized the desirability and the advantage of modifying Lin et al by employing the system of Bull et al in order to generate a unique value that identifies a

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client session and to verify the integrity of the response coming from the server [Col. 6, lines 39-50 and col. 7, lines 29-35].

Bull et al further teaches said re-generating the nonce using a deterministic function with a sequence number of the nonce and a plurality of persistent field values extracted from the packet, and a pre-provided secret value as inputs to the deterministic function [Col. 5, lines 9-34 and Col. 6, lines 7-65].

As per claims 5, 13 and 24, Lin et al teach the invention, wherein said plurality of persistent field values comprise one or more of a source address, a destination address and a port number [col. 5, 2-7].

As per claim 6, Bull et al further teach the invention as explained in claim 4 above, wherein the method further comprises at least one of receiving into said routing device said secret value, and equipping/configuring said routing device with said deterministic function [Col. 5, lines 9-34 and Col. 6, lines 7-65].

As per claim 7 and 25, Bull et al further teaches the invention, wherein said independent generation is performed using a

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selected one of a message authentication code function and an universal hash function [col. 5, lines 39 to Col. 6, lines 7-47].

As per claim 8, Primark et al as modified teach the invention, wherein the method further comprises recording a time of first observation for the nonce if the nonce is a newly observed nonce [col. 9, lines 20-67].

As per claim 9, Primark et al as modified teach the invention, wherein the method further comprises determining if time has elapsed more than a predetermined threshold since a time of first observation was recorded for the nonce, if the extracted nonce and the independently generated nonce are deemed to be the same [col. 9, lines 20-67].

As per claims 20-21 and 23, these claims include similar limitations as claim 4 and 12 above. Therefore, they are rejected with the same rationale.

9. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bull et al USPN (6799270) in view of Canion et al USPN. (20020108059).

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As per claims 30 and 31, Although Bull et al shows substantial features of the claimed invention as explained in claims 14 and 26 above, he does not explicitly show dropping a packet through a network in response to a conversation identifier to protect the network against undesirable packets that is part of a denial of service attack

Nonetheless, this feature is well known in the art and would have been an obvious modification of the system disclosed by Bull et al, as evidenced by Canion et al USPN. (20020108059). In analogous art, Canion et al whose invention is about a system for detecting incoming data packets in a network, disclose a way of dropping (discarding) a packet through a network in response to a conversation identifier (packet information) to protect the network against undesirable packets that is part of a denial of service attack (§ 0174-0177 and § 0183-0187). Giving the teaching of Bull et al, a person of ordinary skill in the art would have readily recognized the desirability and the advantage of modifying Lin and Primak et al by employing the intrusion detection system of Canion et al in order to identify packets with potential security violations for the advantage of protecting the network against network security attacks such as denial of

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service attacks, sync attacks, ping attacks and unauthorized attacks (§ 0171 and § 0183-0187).

Conclusion

10. **ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

The prior made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yasin

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Bargadle whose telephone number is 571-272-3947. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Burgess can be reached on 571-272-3949. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or public PAIR system. Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YB


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